SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

Tyrone Systems

(Test Sponsor: Netweb Technologies India Ltd)

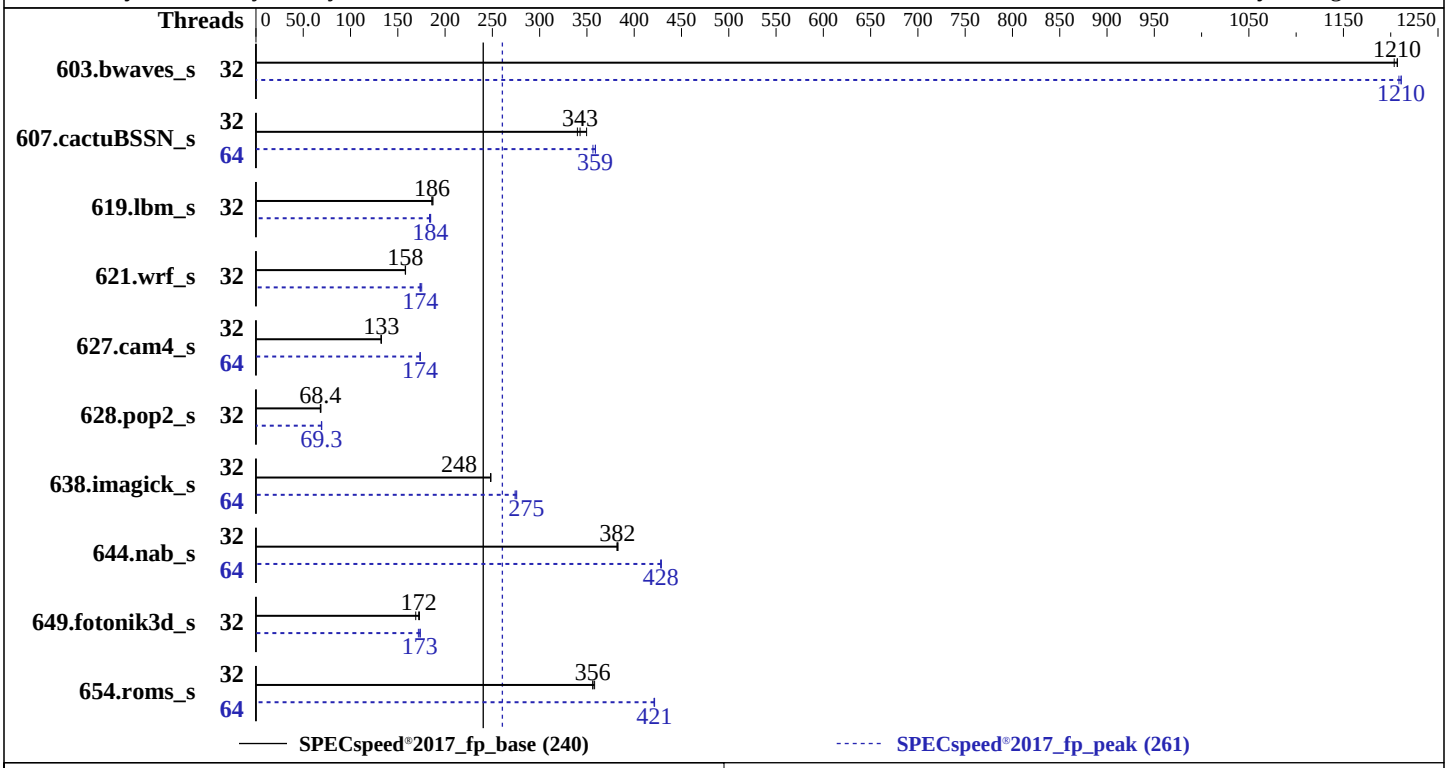
(Tyrone Camarero SDA200A2N-212)
(4.10 GHz, AMD EPYC 9174F)

SPECspeed®2017_fp_base = 240

SPECspeed®2017_fp_peak = 261

CPU2017 License: 6802
Test Sponsor: Netweb Technologies India Ltd
Tested by: Tyrone Systems

Test Date: Sep-2024
Hardware Availability: Jun-2023
Software Availability: Aug-2024



Hardware

CPU Name:	AMD EPYC 9174F
Max MHz:	4400
Nominal:	4100
Enabled:	32 cores, 2 chips, 2 threads/core
Orderable:	1,2 chips
Cache L1:	32 KB I + 32 KB D on chip per core
L2:	1 MB I+D on chip per core
L3:	256 MB I+D on chip per chip, 32 MB shared / 2 cores
Other:	None
Memory:	1 TB (16 x 64 GB 2Rx4 PC5-4800B-R)
Storage:	1 x 1 TB NVMe
Other:	CPU Cooling: Air

Software

OS:	Ubuntu 20.04.4 LTS kernel version 5.15.0-119-generic
Compiler:	C/C++/Fortran: Version 4.0.0 of AOCC
Parallel:	Yes
Firmware:	Version 1.9a released Jun-2024
File System:	ext4
System State:	Run level 3 (multi-user)
Base Pointers:	64-bit
Peak Pointers:	64-bit
Other:	None
Power Management:	BIOS set to prefer performance at the cost of additional power usage.

SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

Tyrone Systems

(Test Sponsor: Netweb Technologies India Ltd)

(Tyrone Camarero SDA200A2N-212)
(4.10 GHz, AMD EPYC 9174F)

SPECspeed®2017_fp_base = 240

SPECspeed®2017_fp_peak = 261

CPU2017 License: 6802
Test Sponsor: Netweb Technologies India Ltd
Tested by: Tyrone Systems

Test Date: Sep-2024
Hardware Availability: Jun-2023
Software Availability: Aug-2024

Results Table

Benchmark	Base							Peak						
	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
603.bwaves_s	32	**48.9**	**1210**	48.9	1210	49.0	1200	32	48.8	1210	**48.7**	**1210**	48.7	1210
607.cactuBSSN_s	32	49.0	340	47.7	350	**48.6**	**343**	64	46.4	359	46.8	356	**46.5**	**359**
619.lbm_s	32	28.0	187	**28.1**	**186**	28.2	186	32	**28.4**	**184**	28.5	184	28.4	185
621.wrf_s	32	**83.6**	**158**	83.6	158	83.8	158	32	**76.1**	**174**	76.2	174	75.5	175
627.cam4_s	32	66.8	133	67.0	132	**66.8**	**133**	64	51.0	174	**51.0**	**174**	51.0	174
628.pop2_s	32	173	68.6	174	68.0	**174**	**68.4**	32	171	69.6	**171**	**69.3**	172	69.2
638.imagick_s	32	58.2	248	**58.1**	**248**	58.1	248	64	52.6	274	**52.5**	**275**	52.3	276
644.nab_s	32	**45.7**	**382**	45.6	383	45.8	382	64	**40.8**	**428**	40.8	428	40.8	429
649.fotonik3d_s	32	52.7	173	54.0	169	**53.0**	**172**	32	53.1	172	**52.6**	**173**	52.4	174
654.roms_s	32	**44.2**	**356**	44.2	356	44.0	358	64	37.4	421	**37.4**	**421**	37.4	422

SPECspeed®2017_fp_base = 240

SPECspeed®2017_fp_peak = 261

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

Compiler Notes

```
The AMD64 AOCC Compiler Suite is available at
http://developer.amd.com/amd-aocc/
```

Submit Notes

```
The config file option 'submit' was used.
'numactl' was used to bind copies to the cores.
See the configuration file for details.
```

Operating System Notes

```
'ulimit -s unlimited' was used to set environment stack size limit
'ulimit -l 2097152' was used to set environment locked pages in memory limit

runcpu command invoked through numactl i.e.:
numactl --interleave=all runcpu <etc>

To limit dirty cache to 8% of memory, 'sysctl -w vm.dirty_ratio=8' run as root.
To limit swap usage to minimum necessary, 'sysctl -w vm.swappiness=1' run as root.
To free node-local memory and avoid remote memory usage,
'sysctl -w vm.zone_reclaim_mode=1' run as root.
To clear filesystem caches, 'sync; sysctl -w vm.drop_caches=3' run as root.
To disable address space layout randomization (ASLR) to reduce run-to-run
variability, 'sysctl -w kernel.randomize_va_space=0' run as root.

To enable Transparent Hugepages (THP) only on request for base runs,
'echo madvise > /sys/kernel/mm/transparent_hugepage/enabled' run as root.
To enable THP for all allocations for peak runs,
'echo always > /sys/kernel/mm/transparent_hugepage/enabled' and
'echo always > /sys/kernel/mm/transparent_hugepage/defrag' run as root.
```

Environment Variables Notes

```
Environment variables set by runcpu before the start of the run:
GOMP_CPU_AFFINITY = "0-63"
LD_LIBRARY_PATH = "/home/cpu2017/amd_speed_aocc400_znver4_A_lib/lib:"
LIBOMP_NUM_HIDDEN_HELPER_THREADS = "0"
MALLOC_CONF = "oversize_threshold:0,retain:true"
OMP_DYNAMIC = "false"
OMP_SCHEDULE = "static"
OMP_STACKSIZE = "128M"
OMP_THREAD_LIMIT = "64"

Environment variables set by runcpu during the 603.bwaves_s peak run:
GOMP_CPU_AFFINITY = "0-31"

Environment variables set by runcpu during the 607.cactuBSSN_s peak run:
GOMP_CPU_AFFINITY = "0-63"

Environment variables set by runcpu during the 619.lbm_s peak run:
GOMP_CPU_AFFINITY = "0-31"

Environment variables set by runcpu during the 621.wrf_s peak run:
GOMP_CPU_AFFINITY = "0-31"

Environment variables set by runcpu during the 627.cam4_s peak run:
GOMP_CPU_AFFINITY = "0-63"

Environment variables set by runcpu during the 628.pop2_s peak run:
GOMP_CPU_AFFINITY = "0-31"

Environment variables set by runcpu during the 638.imagick_s peak run:
GOMP_CPU_AFFINITY = "0-63"

Environment variables set by runcpu during the 644.nab_s peak run:
GOMP_CPU_AFFINITY = "0-63"

Environment variables set by runcpu during the 649.fotonik3d_s peak run:
GOMP_CPU_AFFINITY = "0-31"
PGHPF_ZMEM = "yes"

Environment variables set by runcpu during the 654.roms_s peak run:
GOMP_CPU_AFFINITY = "0 32 1 33 2 34 3 35 4 36 5 37 6 38 7 39 8 40 9 41 10 42 11 43 12 44 13 45 14 46 15 47
     16 48 17 49 18 50 19 51 20 52 21 53 22 54 23 55 24 56 25 57 26 58 27 59 28 60 29 61 30 62 31 63"
```

General Notes

```
Binaries were compiled on a system with 2x AMD EPYC 9174F CPU + 1.5TiB Memory using RHEL 8.6

NA: The test sponsor attests, as of date of publication, that CVE-2017-5754 (Meltdown)
is mitigated in the system as tested and documented.
Yes: The test sponsor attests, as of date of publication, that CVE-2017-5753 (Spectre variant 1)
is mitigated in the system as tested and documented.
Yes: The test sponsor attests, as of date of publication, that CVE-2017-5715 (Spectre variant 2)
is mitigated in the system as tested and documented.
```

Platform Notes

```
BIOS Settings:
cTDP: 400
Determinism Slider set to Power
Package Power: 400
EDC: 400
ACPI SRAT L3 Cache as NUMA Domain: enabled

 Sysinfo program /home/cpu2017/bin/sysinfo
 Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197
 running on amd2-Super-Server Sat Sep  7 08:55:39 2024

 SUT (System Under Test) info as seen by some common utilities.

 ------------------------------------------------------------
 Table of contents
 ------------------------------------------------------------
  1. uname -a
  2. w
  3. Username
  4. ulimit -a
  5. sysinfo process ancestry
  6. /proc/cpuinfo
  7. lscpu
  8. numactl --hardware
  9. /proc/meminfo
 10. who -r
 11. Systemd service manager version: systemd 245 (245.4-4ubuntu3.20)
 12. Failed units, from systemctl list-units --state=failed
 13. Services, from systemctl list-unit-files
 14. Linux kernel boot-time arguments, from /proc/cmdline
 15. sysctl
 16. /sys/kernel/mm/transparent_hugepage
 17. /sys/kernel/mm/transparent_hugepage/khugepaged
 18. OS release
 19. Disk information
 20. /sys/devices/virtual/dmi/id
 21. dmidecode
 22. BIOS
 ------------------------------------------------------------

 ------------------------------------------------------------
 1. uname -a
   Linux amd2-Super-Server 5.15.0-119-generic #129~20.04.1-Ubuntu SMP Wed Aug 7 13:07:13 UTC 2024 x86_64
   x86_64 x86_64 GNU/Linux

 ------------------------------------------------------------
 2. w
    08:55:39 up 18:36,  2 users,  load average: 5.71, 5.18, 3.16
   USER     TTY      FROM             LOGIN@   IDLE   JCPU   PCPU WHAT
   root     tty1     -                Fri13    2:55m  3.07s  0.72s /bin/bash ./amd_speed_aocc400_znver4_A1.sh
   root     tty2     -                Fri14   18:31m  0.07s  0.02s -bash

 ------------------------------------------------------------
 3. Username
   From environment variable $USER:  root

 ------------------------------------------------------------
 4. ulimit -a
   time(seconds)        unlimited
   file(blocks)         unlimited
```

(Continued on next page)

Platform Notes (Continued)

```
   data(kbytes)         unlimited
   stack(kbytes)        unlimited
   coredump(blocks)     0
   memory(kbytes)       unlimited
   locked memory(kbytes) 2097152
   process              4126754
   nofiles              1024
   vmemory(kbytes)      unlimited
   locks                unlimited
   rtprio               0

------------------------------------------------------------
5. sysinfo process ancestry
 /sbin/init splash
 /bin/login -p --
 -bash
 python3 ./run_amd_speed_aocc400_znver4_A1.py
 /bin/bash ./amd_speed_aocc400_znver4_A1.sh
 runcpu --config amd_speed_aocc400_znver4_A1.cfg --tune all --reportable --iterations 3 fpspeed
 runcpu --configfile amd_speed_aocc400_znver4_A1.cfg --tune all --reportable --iterations 3 --nopower
   --runmode speed --tune base:peak --size test:train:refspeed fpspeed --nopreenv --note-preenv --logfile
   $SPEC/tmp/CPU2017.002/templogs/preenv.fpspeed.002.0.log --lognum 002.0 --from_runcpu 2
 specperl $SPEC/bin/sysinfo
$SPEC = /home/cpu2017

------------------------------------------------------------
6. /proc/cpuinfo
    model name      : AMD EPYC 9174F 16-Core Processor
    vendor_id       : AuthenticAMD
    cpu family      : 25
    model           : 17
    stepping        : 1
    microcode       : 0xa101148
    bugs            : sysret_ss_attrs spectre_v1 spectre_v2 spec_store_bypass srso
    TLB size        : 3584 4K pages
    cpu cores       : 16
    siblings        : 32
    2 physical ids (chips)
    64 processors (hardware threads)
    physical id 0: core ids 0-1,8-9,16-17,24-25,32-33,40-41,48-49,56-57
    physical id 1: core ids 0-1,8-9,16-17,24-25,32-33,40-41,48-49,56-57
    physical id 0: apicids 0-3,16-19,32-35,48-51,64-67,80-83,96-99,112-115
    physical id 1: apicids 128-131,144-147,160-163,176-179,192-195,208-211,224-227,240-243
  Caution: /proc/cpuinfo data regarding chips, cores, and threads is not necessarily reliable, especially for
  virtualized systems.  Use the above data carefully.

------------------------------------------------------------
7. lscpu

From lscpu from util-linux 2.34:
  Architecture:                    x86_64
  CPU op-mode(s):                  32-bit, 64-bit
  Byte Order:                      Little Endian
  Address sizes:                   52 bits physical, 57 bits virtual
  CPU(s):                          64
  On-line CPU(s) list:             0-63
  Thread(s) per core:              2
  Core(s) per socket:              16
  Socket(s):                       2
  NUMA node(s):                    2
```

(Continued on next page)

Platform Notes (Continued)

```
  Vendor ID:                           AuthenticAMD
  CPU family:                          25
  Model:                               17
  Model name:                          AMD EPYC 9174F 16-Core Processor
  Stepping:                            1
  Frequency boost:                     enabled
  CPU MHz:                             1412.490
  CPU max MHz:                         4408.2998
  CPU min MHz:                         1500.0000
  BogoMIPS:                            8187.37
  Virtualization:                      AMD-V
  L1d cache:                           1 MiB
  L1i cache:                           1 MiB
  L2 cache:                            32 MiB
  L3 cache:                            512 MiB
  NUMA node0 CPU(s):                   0-15,32-47
  NUMA node1 CPU(s):                   16-31,48-63
  Vulnerability Gather data sampling:  Not affected
  Vulnerability Itlb multihit:         Not affected
  Vulnerability L1tf:                  Not affected
  Vulnerability Mds:                   Not affected
  Vulnerability Meltdown:              Not affected
  Vulnerability Mmio stale data:       Not affected
  Vulnerability Reg file data sampling: Not affected
  Vulnerability Retbleed:              Not affected
  Vulnerability Spec rstack overflow:  Mitigation; safe RET
  Vulnerability Spec store bypass:     Mitigation; Speculative Store Bypass disabled via prctl and seccomp
  Vulnerability Spectre v1:            Mitigation; usercopy/swapgs barriers and __user pointer sanitization
  Vulnerability Spectre v2:            Mitigation; Enhanced / Automatic IBRS; IBPB conditional; STIBP
                                       always-on; RSB filling; PBRSB-eIBRS Not affected; BHI Not affected
  Vulnerability Srbds:                 Not affected
  Vulnerability Tsx async abort:       Not affected
  Flags:                               fpu vme de pse tsc msr pae mce cx8 apic sep mtrr pge mca cmov pat
                                       pse36 clflush mmx fxsr sse sse2 ht syscall nx mmxext fxsr_opt pdpe1gb
                                       rdtscp lm constant_tsc rep_good nopl nonstop_tsc cpuid extd_apicid
                                       aperfmperf rapl pni pclmulqdq monitor ssse3 fma cx16 pcid sse4_1
                                       sse4_2 x2apic movbe popcnt aes xsave avx f16c rdrand lahf_lm
                                       cmp_legacy svm extapic cr8_legacy abm sse4a misalignsse 3dnowprefetch
                                       osvw ibs skinit wdt tce topoext perfctr_core perfctr_nb bpext
                                       perfctr_llc mwaitx cpb cat_l3 cdp_l3 invpcid_single hw_pstate ssbd
                                       mba ibrs ibpb stibp ibrs_enhanced vmmcall fsgsbase bmi1 avx2 smep
                                       bmi2 erms invpcid cqm rdt_a avx512f avx512dq rdseed adx smap
                                       avx512ifma clflushopt clwb avx512cd sha_ni avx512bw avx512vl xsaveopt
                                       xsavec xgetbv1 xsaves cqm_llc cqm_occup_llc cqm_mbm_total
                                       cqm_mbm_local avx512_bf16 clzero irperf xsaveerptr rdpru wbnoinvd
                                       amd_ppin cppc arat npt lbrv svm_lock nrip_save tsc_scale vmcb_clean
                                       flushbyasid decodeassists pausefilter pfthreshold avic
                                       v_vmsave_vmload vgif v_spec_ctrl avx512vbmi umip pku ospke
                                       avx512_vbmi2 gfni vaes vpclmulqdq avx512_vnni avx512_bitalg
                                       avx512_vpopcntdq la57 rdpid overflow_recov succor smca fsrm flush_l1d

From lscpu --cache:
     NAME ONE-SIZE ALL-SIZE WAYS TYPE        LEVEL
     L1d       32K       1M    8 Data            1
     L1i       32K       1M    8 Instruction     1
     L2         1M      32M    8 Unified         2
     L3        32M     512M   16 Unified         3

------------------------------------------------------------
8. numactl --hardware
```

(Continued on next page)

Platform Notes (Continued)

```
NOTE: a numactl 'node' might or might not correspond to a physical chip.
  available: 2 nodes (0-1)
  node 0 cpus: 0-15,32-47
  node 0 size: 515783 MB
  node 0 free: 514374 MB
  node 1 cpus: 16-31,48-63
  node 1 size: 515992 MB
  node 1 free: 514749 MB
  node distances:
  node   0   1
    0:  10  32
    1:  32  10

------------------------------------------------------------
9. /proc/meminfo
   MemTotal:       1056538912 kB

------------------------------------------------------------
10. who -r
  run-level 3 Sep 6 13:57

------------------------------------------------------------
11. Systemd service manager version: systemd 245 (245.4-4ubuntu3.20)
  Default Target  Status
  multi-user      degraded

------------------------------------------------------------
12. Failed units, from systemctl list-units --state=failed
    UNIT                              LOAD   ACTIVE SUB    DESCRIPTION
  * fwupd-refresh.service             loaded failed failed Refresh fwupd metadata and update motd
  * NetworkManager-wait-online.service loaded failed failed Network Manager Wait Online

------------------------------------------------------------
13. Services, from systemctl list-unit-files
  STATE            UNIT FILES
  enabled          ModemManager NetworkManager NetworkManager-dispatcher NetworkManager-wait-online
                   accounts-daemon anacron apparmor autovt@ avahi-daemon bluetooth console-setup cron cups
                   cups-browsed dmesg e2scrub_reap getty@ gpu-manager grub-common grub-initrd-fallback
                   irqbalance kerneloops keyboard-setup network-manager networkd-dispatcher ondemand openvpn
                   pppd-dns rsync rsyslog secureboot-db setvtrgb snapd ssh sshd switcheroo-control syslog
                   systemd-pstore systemd-resolved systemd-timesyncd thermald ua-reboot-cmds udisks2 ufw
                   unattended-upgrades whoopsie wpa_supplicant
  enabled-runtime  netplan-ovs-cleanup systemd-fsck-root systemd-remount-fs
  disabled         acpid brltty console-getty debug-shell ipmievd openvpn-client@ openvpn-server@ openvpn@
                   rtkit-daemon serial-getty@ speech-dispatcher speech-dispatcherd
                   systemd-boot-check-no-failures systemd-network-generator systemd-networkd
                   systemd-networkd-wait-online systemd-time-wait-sync upower wpa_supplicant-nl80211@
                   wpa_supplicant-wired@ wpa_supplicant@
  generated        apport ipmidrv openipmi
  indirect         display-manager lightdm saned@ spice-vdagent spice-vdagentd uuidd
  masked           alsa-utils cryptdisks cryptdisks-early hwclock pulseaudio-enable-autospawn rc rcS saned
                   sudo x11-common

------------------------------------------------------------
14. Linux kernel boot-time arguments, from /proc/cmdline
  BOOT_IMAGE=/boot/vmlinuz-5.15.0-119-generic
  root=UUID=1ae71a13-cac0-48f6-b6e6-e15e5e687f57
  ro
  quiet
  splash
```

(Continued on next page)

Platform Notes (Continued)

```
  vt.handoff=7

------------------------------------------------------------
15. sysctl
  kernel.numa_balancing               1
  kernel.randomize_va_space           0
  vm.compaction_proactiveness        20
  vm.dirty_background_bytes           0
  vm.dirty_background_ratio          10
  vm.dirty_bytes                      0
  vm.dirty_expire_centisecs        3000
  vm.dirty_ratio                      8
  vm.dirty_writeback_centisecs      500
  vm.dirtytime_expire_seconds     43200
  vm.extfrag_threshold              500
  vm.min_unmapped_ratio               1
  vm.nr_hugepages                     0
  vm.nr_hugepages_mempolicy           0
  vm.nr_overcommit_hugepages          0
  vm.swappiness                       1
  vm.watermark_boost_factor       15000
  vm.watermark_scale_factor          10
  vm.zone_reclaim_mode                1

------------------------------------------------------------
16. /sys/kernel/mm/transparent_hugepage
  defrag          [always] defer defer+madvise madvise never
  enabled         [always] madvise never
  hpage_pmd_size  2097152
  shmem_enabled   always within_size advise [never] deny force

------------------------------------------------------------
17. /sys/kernel/mm/transparent_hugepage/khugepaged
  alloc_sleep_millisecs   60000
  defrag                      1
  max_ptes_none             511
  max_ptes_shared           256
  max_ptes_swap              64
  pages_to_scan            4096
  scan_sleep_millisecs    10000

------------------------------------------------------------
18. OS release
  From /etc/*-release /etc/*-version
  os-release Ubuntu 20.04.4 LTS

------------------------------------------------------------
19. Disk information
SPEC is set to: /home/cpu2017
  Filesystem     Type  Size  Used Avail Use% Mounted on
  /dev/nvme0n1p2 ext4  938G   21G  870G   3% /

------------------------------------------------------------
20. /sys/devices/virtual/dmi/id
    Vendor:          Tyrone Systems
    Product:         Tyrone Camarero SDA200A2N-224
    Product Family: SMC H13
    Serial:          0123456789

------------------------------------------------------------
```

(Continued on next page)

Platform Notes (Continued)

```
 21. dmidecode
   Additional information from dmidecode 3.2 follows.  WARNING: Use caution when you interpret this section.
   The 'dmidecode' program reads system data which is "intended to allow hardware to be accurately
   determined", but the intent may not be met, as there are frequent changes to hardware, firmware, and the
   "DMTF SMBIOS" standard.
   Memory:
     8x NO DIMM NO DIMM
     16x Samsung M321R8GA0BB0-CQKZJ 64 GB 2 rank 4800


 ------------------------------------------------------------
 22. BIOS
 (This section combines info from /sys/devices and dmidecode.)
    BIOS Vendor:       American Megatrends International, LLC.
    BIOS Version:      1.9a
    BIOS Date:         06/21/2024
    BIOS Revision:     5.27
```

Compiler Version Notes

```
==============================================================================================================
C               | 619.lbm_s(base, peak) 638.imagick_s(base, peak) 644.nab_s(base, peak)
--------------------------------------------------------------------------------------------------------------
AMD clang version 14.0.6 (CLANG: AOCC_4.0.0-Build#434 2022_10_28) (based on LLVM Mirror.Version.14.0.6)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /opt/AMD/aocc/aocc-compiler-4.0.0/bin
--------------------------------------------------------------------------------------------------------------

==============================================================================================================
C++, C, Fortran | 607.cactuBSSN_s(base, peak)
--------------------------------------------------------------------------------------------------------------
AMD clang version 14.0.6 (CLANG: AOCC_4.0.0-Build#434 2022_10_28) (based on LLVM Mirror.Version.14.0.6)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /opt/AMD/aocc/aocc-compiler-4.0.0/bin
AMD clang version 14.0.6 (CLANG: AOCC_4.0.0-Build#434 2022_10_28) (based on LLVM Mirror.Version.14.0.6)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /opt/AMD/aocc/aocc-compiler-4.0.0/bin
AMD clang version 14.0.6 (CLANG: AOCC_4.0.0-Build#434 2022_10_28) (based on LLVM Mirror.Version.14.0.6)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /opt/AMD/aocc/aocc-compiler-4.0.0/bin
--------------------------------------------------------------------------------------------------------------

==============================================================================================================
Fortran         | 603.bwaves_s(base, peak) 649.fotonik3d_s(base, peak) 654.roms_s(base, peak)
--------------------------------------------------------------------------------------------------------------
AMD clang version 14.0.6 (CLANG: AOCC_4.0.0-Build#434 2022_10_28) (based on LLVM Mirror.Version.14.0.6)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /opt/AMD/aocc/aocc-compiler-4.0.0/bin
--------------------------------------------------------------------------------------------------------------

==============================================================================================================
Fortran, C      | 621.wrf_s(base, peak) 627.cam4_s(base, peak) 628.pop2_s(base, peak)
--------------------------------------------------------------------------------------------------------------
AMD clang version 14.0.6 (CLANG: AOCC_4.0.0-Build#434 2022_10_28) (based on LLVM Mirror.Version.14.0.6)
```

(Continued on next page)

Compiler Version Notes (Continued)

```
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /opt/AMD/aocc/aocc-compiler-4.0.0/bin
AMD clang version 14.0.6 (CLANG: AOCC_4.0.0-Build#434 2022_10_28) (based on LLVM Mirror.Version.14.0.6)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /opt/AMD/aocc/aocc-compiler-4.0.0/bin
------------------------------------------------------------------------------------------------------------------------
```

Base Compiler Invocation

C benchmarks:
clang

Fortran benchmarks:
flang

Benchmarks using both Fortran and C:
flang clang

Benchmarks using Fortran, C, and C++:
clang++ clang flang

Base Portability Flags

603.bwaves_s: -DSPEC_LP64
607.cactuBSSN_s: -DSPEC_LP64
619.lbm_s: -DSPEC_LP64
621.wrf_s: -DSPEC_CASE_FLAG -Mbyteswapio -DSPEC_LP64
627.cam4_s: -DSPEC_CASE_FLAG -DSPEC_LP64
628.pop2_s: -DSPEC_CASE_FLAG -Mbyteswapio -DSPEC_LP64
638.imagick_s: -DSPEC_LP64
644.nab_s: -DSPEC_LP64
649.fotonik3d_s: -DSPEC_LP64
654.roms_s: -DSPEC_LP64

Base Optimization Flags

C benchmarks:
-m64 -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3 -O3 -march=znver4
-fveclib=AMDLIBM -ffast-math -fopenmp -flto -fstruct-layout=7
-mllvm -unroll-threshold=50 -mllvm -inline-threshold=1000

(Continued on next page)

Base Optimization Flags (Continued)

C benchmarks (continued):
-fremap-arrays -fstrip-mining -mllvm -reduce-array-computations=3
-DSPEC_OPENMP -zopt -fopenmp=libomp -lomp -lamdlibm -lamdalloc
-lflang

Fortran benchmarks:
-m64 -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3
-Wl,-mllvm -Wl,-enable-X86-prefetching -DSPEC_OPENMP -O3 -march=znver4
-fveclib=AMDLIBM -ffast-math -fopenmp -flto -Mrecursive
-funroll-loops -mllvm -lsr-in-nested-loop
-mllvm -reduce-array-computations=3 -zopt -fopenmp=libomp -lomp
-lamdlibm -lamdalloc -lflang

Benchmarks using both Fortran and C:
-m64 -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3
-Wl,-mllvm -Wl,-enable-X86-prefetching -O3 -march=znver4
-fveclib=AMDLIBM -ffast-math -fopenmp -flto -fstruct-layout=7
-mllvm -unroll-threshold=50 -mllvm -inline-threshold=1000
-fremap-arrays -fstrip-mining -mllvm -reduce-array-computations=3
-DSPEC_OPENMP -zopt -Mrecursive -funroll-loops
-mllvm -lsr-in-nested-loop -fopenmp=libomp -lomp -lamdlibm -lamdalloc
-lflang

Benchmarks using Fortran, C, and C++:
-m64 -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3
-Wl,-mllvm -Wl,-x86-use-vzeroupper=false -O3 -march=znver4
-fveclib=AMDLIBM -ffast-math -fopenmp -flto -fstruct-layout=7
-mllvm -unroll-threshold=50 -mllvm -inline-threshold=1000
-fremap-arrays -fstrip-mining -mllvm -reduce-array-computations=3
-DSPEC_OPENMP -zopt -mllvm -unroll-threshold=100 -finline-aggressive
-mllvm -loop-unswitch-threshold=200000 -Mrecursive -funroll-loops
-mllvm -lsr-in-nested-loop -fopenmp=libomp -lomp -lamdlibm -lamdalloc
-lflang

Base Other Flags

C benchmarks:
-Wno-return-type -Wno-unused-command-line-argument

Fortran benchmarks:
-Wno-unused-command-line-argument

(Continued on next page)

Base Other Flags (Continued)

Benchmarks using both Fortran and C:
`-Wno-return-type -Wno-unused-command-line-argument`

Benchmarks using Fortran, C, and C++:
`-Wno-return-type -Wno-unused-command-line-argument`

Peak Compiler Invocation

C benchmarks:
`clang`

Fortran benchmarks:
`flang`

Benchmarks using both Fortran and C:
`flang clang`

Benchmarks using Fortran, C, and C++:
`clang++ clang flang`

Peak Portability Flags

`Same as Base Portability Flags`

Peak Optimization Flags

C benchmarks:

619.lbm_s: `-m64 -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3 -Ofast
-march=znver4 -fveclib=AMDLIBM -ffast-math -fopenmp
-flto -fstruct-layout=9 -mllvm -unroll-threshold=50
-fremap-arrays -fstrip-mining
-mllvm -inline-threshold=1000
-mllvm -reduce-array-computations=3 -DSPEC_OPENMP -zopt
-fopenmp=libomp -lomp -lamdlibm -lamdalloc -lflang`

(Continued on next page)

Peak Optimization Flags (Continued)

638.imagick_s: Same as 619.lbm_s

644.nab_s: -m64 -Wl,-mllvm -Wl,-region-vectorize -Ofast
-march=znver4 -fveclib=AMDLIBM -ffast-math -fopenmp
-flto -fstruct-layout=9 -mllvm -unroll-threshold=50
-fremap-arrays -fstrip-mining
-mllvm -inline-threshold=1000
-mllvm -reduce-array-computations=3 -DSPEC_OPENMP -zopt
-fopenmp=libomp -lomp -lamdlibm -lamdalloc -lflang

Fortran benchmarks:

603.bwaves_s: -m64 -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3
-Wl,-mllvm -Wl,-enable-X86-prefetching -DSPEC_OPENMP
-Ofast -march=znver4 -fveclib=AMDLIBM -ffast-math
-fopenmp -Mrecursive -mllvm -reduce-array-computations=3
-fvector-transform -fscalar-transform -fopenmp=libomp
-lomp -lamdlibm -lamdalloc -lflang

649.fotonik3d_s: -m64 -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3
-Wl,-mllvm -Wl,-enable-X86-prefetching -DSPEC_OPENMP
-Ofast -march=znver4 -fveclib=AMDLIBM -ffast-math
-fopenmp -flto -Mrecursive
-mllvm -reduce-array-computations=3 -zopt -fopenmp=libomp
-lomp -lamdlibm -lamdalloc -lflang

654.roms_s: Same as 603.bwaves_s

Benchmarks using both Fortran and C:

621.wrf_s: -m64 -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3
-Wl,-mllvm -Wl,-enable-X86-prefetching -Ofast
-march=znver4 -fveclib=AMDLIBM -ffast-math -fopenmp
-flto -fstruct-layout=9 -mllvm -unroll-threshold=50
-fremap-arrays -fstrip-mining
-mllvm -inline-threshold=1000
-mllvm -reduce-array-computations=3 -DSPEC_OPENMP -zopt
-O3 -Mrecursive -funroll-loops -mllvm -lsr-in-nested-loop
-fopenmp=libomp -lomp -lamdlibm -lamdalloc -lflang

627.cam4_s: -m64 -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3
-Wl,-mllvm -Wl,-enable-X86-prefetching -Ofast

(Continued on next page)

Peak Optimization Flags (Continued)

627.cam4_s (continued):
-march=znver4 -fveclib=AMDLIBM -ffast-math -fopenmp
-flto -fstruct-layout=9 -mllvm -unroll-threshold=50
-fremap-arrays -fstrip-mining
-mllvm -inline-threshold=1000
-mllvm -reduce-array-computations=3 -DSPEC_OPENMP -zopt
-Mrecursive -fopenmp=libomp -lomp -lamdlibm -lamdalloc
-lflang

628.pop2_s: -m64 -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3
-Wl,-mllvm -Wl,-enable-X86-prefetching -Ofast
-march=znver4 -fveclib=AMDLIBM -ffast-math -fopenmp
-flto -fstruct-layout=9 -mllvm -unroll-threshold=50
-fremap-arrays -fstrip-mining
-mllvm -inline-threshold=1000
-mllvm -reduce-array-computations=3 -DSPEC_OPENMP -zopt
-Mrecursive -fvector-transform -fscalar-transform
-fopenmp=libomp -lomp -lamdlibm -lamdalloc -lflang

Benchmarks using Fortran, C, and C++:
-m64 -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3
-Wl,-mllvm -Wl,-x86-use-vzeroupper=false -Ofast -march=znver4
-fveclib=AMDLIBM -ffast-math -fopenmp -flto -fstruct-layout=9
-mllvm -unroll-threshold=50 -fremap-arrays -fstrip-mining
-mllvm -inline-threshold=1000 -mllvm -reduce-array-computations=3
-DSPEC_OPENMP -zopt -finline-aggressive -mllvm -unroll-threshold=100
-Mrecursive -fopenmp=libomp -lomp -lamdlibm -lamdalloc -lflang

Peak Other Flags

C benchmarks:
-Wno-return-type -Wno-unused-command-line-argument

Fortran benchmarks:
-Wno-unused-command-line-argument

Benchmarks using both Fortran and C:
-Wno-return-type -Wno-unused-command-line-argument

Benchmarks using Fortran, C, and C++:
-Wno-return-type -Wno-unused-command-line-argument

The flags files that were used to format this result can be browsed at
http://www.spec.org/cpu2017/flags/aocc400-flags.html
http://www.spec.org/cpu2017/flags/Tyrone-Platform-Settings-V1.2-Genoa-revD.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2017/flags/aocc400-flags.xml
http://www.spec.org/cpu2017/flags/Tyrone-Platform-Settings-V1.2-Genoa-revD.xml

SPEC CPU and SPECspeed are registered trademarks of the Standard Performance Evaluation Corporation. All other brand and product names appearing in this result are trademarks or registered trademarks of their respective holders.

For questions about this result, please contact the tester. For other inquiries, please contact info@spec.org.

Tested with SPEC CPU®2017 v1.1.9 on 2024-09-06 23:25:39-0400.
Report generated on 2024-09-25 09:17:27 by CPU2017 PS formatter v6716.
Originally published on 2024-09-24.